



24. The synthesis of alkyl fluorides is best accomplished by:

- (1) Free radical fluorination (2) Sandmeyer's reaction
(3) Finkelstein reaction (4) Swarts reaction

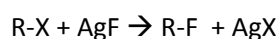
Answer:

Free radical fluorination: This chemical reaction is typical of alkanes and alkyl-substituted aromatics under application of UV light. The reaction is used for the industrial synthesis of chloroform (CHCl_3), dichloromethane (CH_2Cl_2), and hexachlorobutadiene. It proceeds by a free-radical chain mechanism.

Sandmeyer's reaction: The Sandmeyer reaction is a chemical reaction used to synthesize aryl halides from aryl diazonium salts.

Finkelstein reaction: Treatment of a primary alkyl halide or pseudohalide with an alkali metal halide (e.g. KF , KI) leads to replacement of the halogen via an nucleophilic substitution ($\text{S}_{\text{N}}2$ reaction).

Swarts reaction: The reaction of chlorinated hydrocarbons with metallic fluorides to form chlorofluorohydrocarbons. So alkyl fluorides synthesis is best accomplished by Swarts reaction.



Thus alkyl fluoride is best accomplished by Swarts reaction.

Correct option is (4) Swarts reaction